

TECHNOLOGY
15

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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Supersonic Helmet
See Page 23

A SCIENCE SERVICE PUBLICATION

GENERAL SCIENCE

Battery Additive Hearings

Senate Small Business Committee suspends its hearings on the controversial battery additive, and sends letter to Post Office asking why fraud order was issued.

► WHEN IS a test not a test? When is a hearing not a hearing? These are questions raised by the latest charges and sparks in the battery additive controversy.

The Senate Small Business Committee has suspended (June 26) its hearings after the manufacturer of the battery additive, the director of the National Bureau of Standards that declared the material worthless, the M.I.T. tester, and various testimonial-offering users had testified.

Unheard is a long list of announced witnesses, including Post Office, Federal Trade Commission and Better Business Bureau representatives, consumer testing authorities, battery experts, etc.

The committee chairman, Sen. Edward J. Thye (R-Minn.), said (July 1) that he believed personally the suspended Post Office fraud order should be revoked, and his letter on behalf of the committee asked Postmaster General Arthur C. Summerfield why the fraud order had been issued against the battery additive. The committee drew no conclusions from its suspended hearings.

Sen. Hubert H. Humphrey (D-Minn.), also a member of the committee, charged that the investigation might lead to "continuous pressure by private groups to bypass the Bureau of Standards."

Like some of the tests of battery additives, when the treatment is given to all batteries observed, there is lacking in the hearings the comparative information that results from what a scientist knows as a "controlled test."

The hearings were stopped before both sides of the controversy could be heard adequately, and before there was opportunity for examination of testimony as would occur in a court.

Not resolved in the hearings was the idea of a valid scientific or technical test. If a single or a number of batteries are treated with a substance, no valid conclusion can be drawn as to the effect of the substance. There must be a comparison with just the same kind and condition of battery or batteries, left untreated. Even so, there must be an adequate number of batteries tested and the way they act must be quantitatively measured.

Thus the battery mechanic who puts something in a battery and does not do a comparative test, or a "control" test, can be enthusiastic about the way his battery operates, and yet it will actually mean nothing with regard to the value of the material added.

This is why scientists insist upon controls for their tests and the tests of others. A basic principle of science and engineering is

that the same material under the same conditions will act the same.

A senator could be assured by a scientist that magnesium sulfate will act the same way a year or a decade from now as it has in the past. There is no basis for hoping and wishing that magnesium sulfate can be mysteriously improved to pep up batteries in some future tests. Not even an Act of Congress could change the properties of magnesium sulfate.

If there have been properly designed and conducted tests, such as those of the Bureau of Standards, there is no purpose in repeated tests in the hope that a result will finally be obtained that will be to the liking of some manufacturer who desires to sell his product.

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MEDICINE

Polio Chances One in 156 During First 20 Years

► THE CHANCES of a child dying of poliomyelitis before he reaches the age of 21 are one in 1,945. The chances of his getting polio during the first 20 years of his life are one in 156.

These "guesstimates" are given by Dr. Henry W. Kumm of the National Foundation for Infantile Paralysis, New York. They come from analysis of birth data and polio incidence in four states, New York, Connecticut, Massachusetts and North Carolina. The figures pertain to more than 600,000 children born in these states in 1930, 1931 or 1932.

Dr. Kumm's figures are announced in a new medical publication, *Pediatric Clinics of North America* (see p. 12), being distributed to the nation's physicians by W. B. Saunders Company, medical book publishers of Philadelphia.

Science News Letter, July 11, 1953

NUTRITION

World Food Ahead In Population Race

► WORLD FOOD production has pulled ahead of the number of hungry mouths in the race between food supply and increasing population.

The World Food Council of the U.N.'s Food and Agriculture Organization meeting in Rome reported that for the last three years food production has increased about 2% annually while population has risen only 1.4% each year. These figures do not include either the U.S.S.R. or China.

Agricultural production now stands 20% higher than the prewar level, FAO said. While sharp rises in cereal production account for much of the increase, gains have been made in most principal crops.

This picture of increasing food supply, however, is not uniformly true over the world. For instance, agricultural production during the last three years has increased 12% in Europe, 7% in Latin America, and 16% in the Near East. But the Far East and North America have only increased agricultural production 4% to 5% in the last three years.

The Far East is still a long way from growing enough food for its snowballing population. In spite of recent increases, agricultural production is still only 80% to 85% the prewar level.

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NECROLOGY

A. C. Monahan, Aviation Editor and Educator, Dies

► ARTHUR COLEMAN Monahan, 76, SCIENCE SERVICE staff writer for ten years, died July 2 after a long illness.

Mr. Monahan joined SCIENCE SERVICE's editorial staff after retiring as Assistant to the Commissioner of Indian Affairs.

He wrote in the fields of aviation, engineering, technology, mining, mechanics and electronics. For three years he did the weekly feature on new patents.

Born in Framingham, Mass., one of 13 children, Mr. Monahan received his bachelor of science degree from the Massachusetts Agricultural College, now known as the University of Massachusetts.

He was on the staff of the U.S. Office of Education from 1910 to 1918. Mr. Monahan served as a major in the Army during World War I.

Following the war, he worked as director of the Bureau of Education of the National Catholic Welfare Council, and later was an educational consultant for the Central Scientific Co., Chicago, and for the Keweenaw Manufacturing Co., Adrian, Mich.

Surviving are his wife, Mary C. Monahan, four children, a brother and a sister, four grandchildren, and several nieces and nephews.

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TECHNOLOGY

New Hypo Syringe Has Interchangeable Parts

► HOSPITAL NURSES' laborious task of matching code numbers on hundreds of jumbled syringe parts can now be eliminated.

Development of a new interchangeable hypodermic syringe called "Multifit" has been announced by Becton-Dickinson and Company, Rutherford, N. J. Every plunger now fits every barrel.

The cost of replacing broken parts is materially reduced, because all plungers fit all barrels.

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PUBLIC HEALTH

How To Keep Cool

Seven rules are offered for keeping cool in hot weather. Body's heat control unit, acting as a thermostat, is located in the brain.

► HERE ARE some rules for keeping cool in hot weather—and the scientific principles behind them:

1. Wear loose fitting clothing of porous or mesh weave.
2. Take frequent baths or sponge baths.
3. Drink lots of water, taking a cup or glass regularly every hour.
4. Eat cold foods if you like, but eat regular nourishing meals.
5. Rest even if you cannot sleep a full eight hours.
6. Watch for sudden stopping of sweating—a danger sign of heat stroke.
7. Stop talking about the heat—it doesn't help to get hot at the weather.

Now, for some of the principles, or reasons, for these rules:

To keep cool in hot weather, you must help your body lose heat. The body has a heat control center located in the brain. It is made up of three parts. One unit regulates the temperature of the blood. One subordinate unit acts to raise the blood temperature when it drops. Another subordinate unit acts to cool the blood when its temperature is too high.

These units, acting as a thermostat, help to keep the body at a relatively constant temperature of 98.6 degrees Fahrenheit. When body temperature drops below this, the control center in the brain counteracts this by increasing heat production and by contracting blood vessels in the skin and near the skin. When body temperature gets high, the heat control center reverses the process.

When body temperature gets high, the heat control center also, in most persons, starts the sweat glands working harder. As the perspiration evaporates from the skin heat is taken away from the body. When the air is humid and full of moisture, less evaporation can go on, and there is less cooling of the body. Fans which help evaporation, and air conditioning apparatus which also dries the air, make us more comfortable for this reason.

Loose fitting clothing of porous or mesh weave helps this process by letting the perspiration on the skin evaporate more easily.

Frequent baths and sponge bathing help through the same mechanism of putting water on the skin which, when it evaporates, takes up heat and thus cools the body.

When you perspire, some water is lost from the body and also some salt. In very hot industries, workers are given salt tablets to replace the salt they lose. Under most work conditions, however, salt tablets are not needed. Studies a few years ago, however, showed that taking a drink of

water regularly every hour, to replace the water lost in perspiration, helped people keep up efficiency and avoid fatigue during hot weather.

About the third or fourth day of a heat wave, watch out for sudden stopping of sweating. This has been called the most important warning sign of impending heat stroke. If this appears, get the person to bed, make him as cool as possible, urge him to drink lots of water and, if sweating does not start soon, call a doctor. Heat stroke may be fatal.

Eat your normal, nourishing diet even during heat waves. If you are eating only light snacks, you may feel tired and dragged out because you are not getting enough nourishment. Cold foods and beverages are more tempting than hot ones, but be sure you get the protein, from meat, poultry, eggs, fish, milk or cheese, that your body needs regularly and also enough calories.

Even if you cannot sleep, try to get a full eight hours of rest each night and see

that the children get a mid-day rest even if they do not sleep.

You will feel cooler if you stop watching the thermometer and talking about the heat. Keep normally busy and try to keep a calm, cool attitude. Even though you cannot control the weather, you need not let it control you.

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TECHNOLOGY

Aircraft Camera Big as Two Rooms

► A GIANT-SIZED camera that clicks pictures on film three and a half feet wide and four feet high has been designed, built and put to work in the Consolidated Vultee Aircraft Corporation plant, San Diego, Calif.

The big camera, used to reduce and enlarge wall charts and blueprints, is 29 feet long, 10 feet high and has a copy board 12 feet wide and five feet high. The camera is so large that the front is in one room and the rear is in another.

The rear room is designed to double as a darkroom so that film can be transferred directly from the camera to the developing trays.

Serving also as an enlarger, the camera can reproduce drawings with less than two one-thousandths inch deviation per 12 feet from the original.

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GIANT CAMERA—A 200-pound sheet of steel is shown here being positioned on the copyboard of a big, two-room camera. The operator controls movement of the camera by push buttons shown on the side of the camera. The lighted periscope on the control panel enables the operator to see the scale readings registered above.

MEDICINE

Fatigue Is Real Illness

The fact that Churchill's doctors are allowing him to see visitors indicates that the illness he is suffering from is fatigue as has been reported.

► THE FACT that Churchill has been seeing visitors during the rest ordered by his physicians speaks against a heart attack or slight stroke as the reason the rest was ordered.

If he had suffered either of these conditions, as some have wondered, he would have been completely isolated and had no visitors.

The mental fatigue he is reported suffering from may have shown itself in much the same way that a tired child shows fatigue. As every parent knows, a tired child is irritable, even to the point of temper tantrum, and often does not eat.

Grown-ups with just a little of the fatigue Churchill must be suffering grow irritable and tempestuous. And they grow forgetful and sometimes confused.

Many a person when tired from a long period of mental work and strain forgets names or telephone numbers or engagements. Business executives when overtired may forget that an order has already been

issued or a directive given and repeat it. Or they may forget that the order was rescinded and get in a temper because the order was not carried out.

The very tired person often cannot sleep and suffers insomnia. Or he may suffer the reverse and be drowsy.

A fatigue state such as this, if not stopped, can go on to the point of exhaustion when the person is completely out. Churchill's physicians naturally want to save him from this.

A tired, overworked person accumulates what doctors call a "fatigue deficit." And he must feel worse before he can begin to feel better. Until such a person relaxes he does not realize how tired he is and therefore after he has started to rest he will feel more tired.

If Churchill has recognized himself that he is too tired to carry responsibility, and is willing to rest, it shows the high level of his I.Q.

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From the decrease in percentage of helium as the patient breathes from the machine, the doctor can calculate the efficiency of the lungs at mixing gases and therefore whether an operation will be safe. The test was reported by Drs. Oscar J. Balchum and Abe Ravin of the National Jewish Hospital, Denver, to the Trudeau Society.

The speed with which inhaled air is mixed and distributed to various parts of the lungs is seriously reduced, they found, in patients with asthma, emphysema and tuberculosis of the lungs.

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PSYCHOLOGY

Intergroup Prejudices

► FEW PEOPLE act strictly according to their own prejudices. This is one of the hunches or hypotheses being tested out in an eight-year study of intergroup relations at the Social Science Research Center at Cornell University, Ithaca, N. Y.

This hypothesis, which developed from a preliminary "pilot" study, would account for the fact that the same person acts differently in different situations. A man may accept Jews at work, for example, but strongly oppose admitting them to his club.

One bartender refused to serve Negroes and argued firmly for racial segregation in restaurants and taverns. But the same man argued just as firmly that Negro baseball players should play in the major leagues, a practice that is now accepted.

A member of a women's club talked cordially with a Negro speaker before and after his talk. But when a white field worker questioned her later about her prejudices, she was found to be "full of them." She said she thought Negroes should be completely segregated "on an island by themselves."

A reverse situation occurred when a white referee at an inter-racial basketball game struck a Negro heckler. Later interviews brought out the fact that this referee was nearly free of prejudice against

Negroes. He was not down on Negroes; he just didn't have patience with hecklers.

Another preliminary finding is that many people live in a remarkably strict self-imposed segregation, going through the same little cycle of activities day after day and week after week, never coming into contact with new people. In one community, 50% of the white gentiles interviewed had no contact at all with any member of a minority, either at work, in the neighborhood or socially.

"These narrow social environments have a strong influence on beliefs and actions," Prof. John P. Dean, one of the directors of the study, said. "If there are few contacts, few friendships can develop. Unexpected contacts make both parties uneasy."

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SURGERY

Tests Tells Whether Lungs Stand Operation

► TO TELL whether it is safe to operate on a patient with lung trouble, doctors can first have the patient inhale the inert balloon gas, helium, from a spirometer. This is an instrument for measuring the air taken into and exhaled from the lungs.

BIOCHEMISTRY

Counter Atomic Radiation

► GOLDEN HAMSTERS lose their fur and it comes back in white instead of golden as a result of radiation damage, Drs. Willie W. Smith, Robert Q. Marston and Leon Goshery of the National Institutes of Health, Bethesda, Md., reported at the Radiation Research Society meeting at the State University of Iowa.

The discovery was made in a search for methods of treating radiation sickness such as might affect atom bomb victims surviving the immediate attack but dying a few weeks later.

Infection because of reduced resistance is known to play a part in such deaths. By treating the hamsters with streptomycin, Dr. Smith and associates found they could keep the hamsters alive long enough to see what the heavy radiation does to the body and how it kills when there is no infection. From such studies the next step would be to try methods of counteracting the radiation effect.

Hamsters and mice that survive radiation for seven days can be kept alive for at least 28 days by injection shortly after radiation of a spleen and bone marrow mixture or spleen alone. This is associated with a recovery of white blood cells at that time and consequent prevention or control of infection. By the seventh day after radiation, both mice and hamsters are recovering rapidly whether they had high or low doses of radiation.

During the seventh- to the 28th-day-period was when the hair loss and color change appeared in the hamsters. The animals are also being watched to see whether cancers will develop during this late post-radiation stage.

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PSYCHOLOGY

Dog Can Fail Too Often

► IF AN apparently smart dog stops learning when he is being trained, it is because he has been frightened or has failed too often, Dr. J. P. Scott and Miss Margaret S. Charles of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., have found.

Their studies were made with beagles, African basenjis, cocker spaniels and wire-haired terriers. These breeds were selected because all can be taught easily and all readily learn some form of hunting.

The behavior of these breeds was tested in different ways to try to learn what it is that makes one dog easier to train than another. Tests of pure intelligence showed little if any differences between the breeds, but differences in temperamental characteristics and physiological traits related to emotions were easy to find.

Of all the domestic animals, dogs have been most highly selected for hereditary



PROGRESS OF RADIATION DAMAGE—At top is shown a golden hamster shortly after a heavy dose of radiation, the middle view pictures the animal after he has lost his hair, and the bottom photograph shows how the hair has grown in all white. The hamsters are being used in a study at the National Institutes of Health to uncover methods of treating radiation sickness.

Differences in Learning Ability

differences and behavior. From their tests the scientists concluded that this selection has largely acted on traits which affect motivation and feelings.

All the dogs seemed to have about the same ability to learn if they could be motivated. The thing that seems to produce differences is the fact that at some point in training the animal stops learning. The kinds of things which stop the animal tend to be lack of success and frightening experiences in the situation.

Direct comparisons with the human situation are not justified, but the work with the animals suggests that a search needs to be made in human beings for measurable traits related to the physiology of emotions which are not greatly subject to environmental change and, therefore, may play an important part in determining how people react.

Science News Letter, July 11, 1953

• RADIO

Saturday, July 18, 1953, 3:15-3:30 p.m. EDT
"Adventures in Science" with Watson Davis, director of Science Service over the CBS Radio Network. Check your local CBS station.

Prof. Edward Smoke, ceramic research specialist, Rutgers Ceramic Research Station, State University of New Jersey, will discuss "New Products From Earthy Materials."

AGRICULTURE

Wheat Protein Content Raised by Leaf Spray

► PROTEIN CONTENT of wheat has been increased from 9% to 17% by spraying nitrogen in solution directly on the leaves of growing wheat, Dr. A. H. Moseman of the U. S. Department of Agriculture told members of the American Home Economics Association meeting in Kansas City, Mo.

Work on spraying fertilizers on leaves is still in the experimental stage, Dr. Moseman cautioned. However, he pointed out, experience has shown that any means of more efficient utilization of nitrogen by wheat usually leads to higher protein yield.

Two new varieties of wheat, Atlas 50 and Atlas 66, are especially efficient users of nitrogen present in the soil. As a result, they show protein percentages two or three points above the best old varieties grown on the same soil and under the same conditions.

There are about 200 varieties of wheat used in the United States, Dr. Moseman said.

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DENTISTRY

Dental Association Hits Tooth Paste Claims

► THE AMERICAN Dental Association has announced in Chicago that it will make a "thorough dissection" of the tooth pastes and powders claimed to have anti-caries or other remedial effects.

Those containing chlorophyll, ammonia and urea, antienzymes and antibiotics will, as the layman might put it, be given the works at a special session during the association's convention next September.

"The hucksters' puffs of dental creams and dental powders are deplorable, exasperating and embarrassing" to the 77,000 members of the association who are trying to improve the health of the public and promote the art and science of dentistry, the editor of the association's journal states.

"Many of these puffs and superclaims are on the same low level as those made for discredited cancer cures and arthritis remedies."

No dentifrice offered to the public, the association's council on dental therapeutics has found, has usefulness beyond helping the toothbrush in cleaning the accessible surfaces of the teeth.

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VETERINARY MEDICINE

Foot-and-Mouth Debate

Two sides of the problem of combating aftosa are being hotly argued by Mexicans who must decide between sanitary rifle and vaccination needle.

► MEXICAN OFFICIALS are wrestling with their consciences over whether to stop using total slaughter as a means of combating dreaded foot-and-mouth disease of cattle.

The weight of popular opinion in Mexico seems to be against using the "sanitary rifle" to kill all infected herds, and popular opinion soon becomes political pressure. But the scientists and agriculture experts know that any steps short of total eradication of infected animals will lead to the permanent establishment of foot-and-mouth, or aftosa, in Mexico.

Negotiations now underway between Mexican and U. S. officials of the bi-national Anti-Aftosa Commission are in a "delicate" state, the U. S. holding out for the sanitary rifle, while the Mexicans look longingly at the less awesome—but less effective—vaccination needle.

The latest outbreak of aftosa in Mexico began last May in the state of Vera Cruz, near the village of Gutierrez Zamora, after more than a year of freedom from the disease. Moving with great speed, the Anti-Aftosa Commission put to death about 500 head of cattle in the area by the sanitary rifle.

However, reaction to this drastic, though absolutely necessary, treatment followed quickly and feeling began to run high against slaughter. A prominent Mexico City newspaper carried banned headlines proclaiming that "new methods" for combating aftosa were to be adopted, while the sanitary rifle would be put away.

The hope of the "optimists" that foot-and-mouth disease can be eradicated in Mexico without slaughter is based on vaccines, such as are used in Europe and the Near East against this plague. But the difference between the Mexican and the Old World situation with aftosa is vast.

The disease in Europe and the Near East is widespread, permanent, endemic. Slaughter could not possibly wipe out the disease—unless all the split-hoofed animals, domestic and wild, were destroyed, an unlikely solution. There, vaccination is about the only remedy that can be offered to cut down on livestock losses to aftosa.

Foot-and-mouth disease in Mexico, though, is a stranger, an unwanted alien. Because it is not permanently established and spread throughout the country, immediate and total slaughter of any infected herds discovered can mean that the disease will never become endemic there. And with effective quarantine at the nation's borders, the destructive disease can be forever kept out of Mexican herds.

The Mexicans have a tough decision to make. If they succumb to the temptation of putting up the sanitary rifle, they may win votes, gain popularity, perhaps save some money in the immediate future—although they will probably lose the United States as a market for their meat.

But if they follow the advice of scientists

who have weighed the facts, that anything less than slaughter is an invitation for the disease to become a perpetual and malignant drain on the Mexican economy, then the long-term interests of their people will be best served.

There is room for hope that the sanitary rifle will stay around for a long time. Many of the officials of the Mexican half of the Anti-Aftosa Joint Commission took part in the campaign against aftosa in the 1940's in Mexico, and have seen the good work of the sanitary rifle.

These men and officials in the Ministry of Agriculture and Livestock are competent scientists and trained agriculturists. Scientific fact will probably win over popular emotion.

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MEDICINE

Hospital Not a Hospital

► A HOSPITAL that is not a hospital has opened in Bethesda, Md.

It is a 14-story, red brick, \$60,000,000 structure with beds for 500 patients, but the patients will not be admitted just because they are sick people who need medical and surgical care.

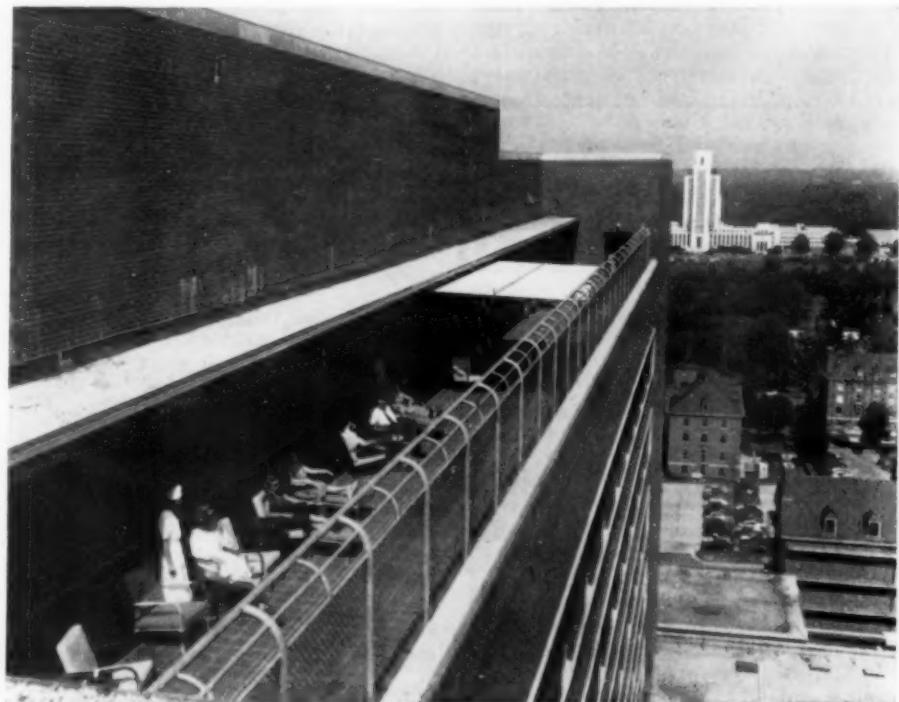
Their ticket of admission will be a precise diagnosis according to a standard established for a particular disease study.

The hospital is not even called a hospital.

Its name is The Clinical Center, and it is a "research resource" of the Public Health Service of the Department of Health, Education and Welfare.

Although there are beds for 500 patients, a dining room and solarium on every floor, and a theater, library and chapel, this hospital that is not a hospital has twice as much space for laboratories as for patient care.

The reason is that the Clinical Center is to be a research center for the study of the



SUNNING SPOT—The sun deck on the 14th floor of the new Clinical Center of the National Institutes of Health gives patients a view of neighboring buildings, including the Naval Medical Center across from the Institute.

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NEW-TYPE PATIENTS' ROOM—This spacious home-like room at the Clinical Center of the National Institutes of Health is actually a hospital room. The beds are easily made ready for sleeping and the colorful decoration makes it seem less like a hospital.

major health problems of the nation: brain and nervous and mental diseases, cancer, arthritis, heart and blood vessel diseases.

To be sure, there are in the nation other hospitals where research is carried out on these diseases. But most of the great medical research centers of the nation and of the world admit patients primarily because they are sick people needing medical attention. While they are being treated, they may also be subjects of study in the staff scientists' search for better ways to conquer disease.

At the Clinical Center, however, the study will be primary, care of the patients secondary in a sense, although this care will be the best that can be given. But the patients will be admitted because they all have the same disease—whatever one the scientists have decided to study. And they will all have the same stage of the disease. They must all be as nearly alike as possible in age, weight, sex and other physical characteristics.

Since it will take time to find 500 such almost peas-in-a-pod patients all suffering from the same stage of the same disease, many of the Clinical Center's 500 beds will be empty for some time to come. No more than 15 or 20 patients were expected in Bethesda by July 6.

Those 15 or 20 and the ones to follow will become members of a research team working under unique conditions which, it is hoped, will speed discovery of cures or preventives of diseases that afflict millions.

The dedication speech was delivered by Mrs. Oveta Culp Hobby, Secretary of Health, Education and Welfare, of which the Public Health Service is a division. The center, she said, will house "the widest array of specialists and technicians" that has been assembled to work in pure and applied science.

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ORNITHOLOGY

Clever Cuckoos Cage Meals From Bossy

BY LETTING a cow do the work, cuckoos in El Salvador feed on three grasshoppers where one was caught before, reports Dr. Austin L. Rand, curator of birds at the Chicago Natural History Museum.

Watching a group of indolent but clever cuckoos feed at the feet of cows stirring up insects as they grazed, Dr. Rand came up with the following statistics:

During the dry season, it took an average of two minutes for a bird to find an insect without the aid of a cow. With bossy, however, the bird could average three entries in the same period of time.

During the lush wet season, pickings were better. An alert bird could catch three or four insects a minute unaided. But, again with bossy, the score mounted to five or six a minute.

Owls are not the only wise birds, statistics seem to show,

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AERONAUTICS

Pilots Can Hang Onto This New Supersonic Hat

See Front Cover

► A NEW helmet, shown on the cover of this week's SCIENCE NEWS LETTER, has been created for Air Force pilots who some day may have to bail out of supersonic planes.

The helmet, custom built to fit each wearer, was designed by Douglas Aircraft engineers, Santa Monica, Calif., to stay on the pilot's head during bailouts. Present-day helmets tend to blow off, tests revealed. This strips the pilot of head protection and it snatches away his oxygen.

By cutting slots into the new helmet behind the forehead portion, designers were able to make the helmet stick to its job. The slots create a small vacuum which holds the helmet firmly in place. They also permit air to escape from inside the helmet. With present-day helmets, this is a problem. During bailouts at supersonic speeds, air pressure tends to build up inside the helmet. Eventually the pressure is so great that it literally blows the helmet off the pilot's head.

The new helmets recently proved successful in outdoor wind tunnel tests at simulated speeds up to Mach 1.04. This speed is slightly above the speed of sound.

Science News Letter, July 11, 1953

TECHNOLOGY

Newly Developed Rice Oil Helps Cooks, Industry

► CHEMISTS HAVE learned to extract a new oil from rice bran which is usually wasted in the milling of rice. The oil promises to be a boon to housewives and to manufacturers of cosmetics, soaps and anti-rust compounds.

Pioneered by the American Rice Growers' Cooperative Association, Houston, Texas, the new industrial extraction process yields a clear, light-colored oil having a bland flavor and odor. It resembles peanut oil in physical properties, but is more resistant to becoming rancid than other vegetable oils.

The ARGC, reporting to the Southern Association of Science and Industry in Atlanta, Ga., revealed that rice oil when used in cooking does not pick up flavors and odors of foods fried in it. Thus the housewife can fry fish, potatoes, onions, chicken and oysters in it without the problem of carry-over flavor. Foods fried in rice oil also contain less fat than when they are fried in other oils.

Further experiments have shown that the oil also is a good industrial lubricant because of its high penetration ability. A by-product of the oil is rice-bran wax which has a melting point as high as carnauba wax. Carnauba wax now goes into candles and varnish among other things.

Science News Letter, July 11, 1953

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PHARMACOLOGY

New Anti-Ulcer Drug Akin to Soapless Soap

► A NEW drug for ulcer patients is on the market. It is a quaternary ammonium compound, akin to some of the new so-called soapless soaps. It acts to relieve stomach ulcers by stopping the stomach's output of hydrochloric acid.

The new drug, called Pamine, was developed by Dr. Robert Bruce Moffett and associates at the research laboratories of the Upjohn Company, Kalamazoo, Mich. Chemically, it is epoxytropine tropate methylbromide.

On the basis of ability to produce a non-acid state in the stomach and to be effective in the smallest dose when injected into the muscles, Pamine rated top among 16 drugs tested by Drs. Joseph B. Kirsner and Walter L. Palmer of the University of Chicago School of Medicine.

Side effects, such as dryness of the mouth and throat, were less troublesome with Pamine, Chicago doctors found.

Although some of their testing was done on effects of the drugs injected into the muscles, the doctors found Pamine also effective when given by mouth, which is the way most patients probably will take it.

The goal of an anti-ulcer drug is to reduce stomach acidity for long periods, five, six or eight hours, without any side effects. While this has not yet been achieved, Pamine seems to approach it.

Pamine will be sold only on doctor's prescription. It is expected to retail for about two and one-half cents a tablet.

Science News Letter, July 11, 1953

CHEMISTRY

Invisible Sugar Causes Mystery Clothing Stains

► BROWN STAINS that first show on a dress or suit after it has been dry cleaned are due to certain kinds of sugars used in artificial flavoring for candies and beverages, most types of fruit juices, and cocktails, beer and ale.

This solution to a mystery that bothers the dry cleaner and his customer was discovered in research reported by Dorothy S. Lyle of the National Institute of Drycleaning, Silver Spring, Md., at the meeting of the American Home Economics Association in Kansas City, Mo.

The stains are invisible when fresh but turn brown when heated. To make matters worse, the stains are different depending on the fabric. One, found commonly on wool but also on silk and nylon, is called the "wool-sugar stain." Once set by heat, this stain is not affected by any chemical.

The other, called the "sugar-alkali stain," comes on cotton, linen, acetate, rayon and other cellulose materials. This is encouraged to brown by alkalies as well as heat, but it does not develop if the atmosphere is

neutral or acid. It can be removed by acid spotting formulas commonly used in the dry cleaning industry.

To keep the heat down below a temperature at which either of these sugar stains develops, the National Institute of Drycleaning recommends that dresses be "tumbled" at 120 degrees Fahrenheit.

Science News Letter, July 11, 1953

AERONAUTICS

Radar on RAF Jets Aims Planes' Guns

► BRITISH ELECTRONIC engineers have created a radar-ranging system, called Ecko, that promises to help RAF jet fighter pilots shoot down three or four times more enemy planes than they can at present.

The radar gear, housed in a one-cubic-foot package, locks on the target and feeds range information continuously to the gunsight. The gunsight in turn makes sighting allowances automatically for range and deflection.

Ecko is much simpler and smaller than the automatic radar now used for all-weather and night fighters. This equipment is so bulky that a small, light plane cannot carry it. Until now the day fighter pilot had to feed ranging information to the gunsight by hand, the Society of British Aircraft Constructors reports.

By relieving the pilot of the task of ranging and feeding the distance information to the gunsight, Ecko should permit the pilot to give much more of his attention to the attack itself.

It was possible to make the new system less complex because the day fighter pilot can look for targets. At night this is impossible. More complex searching and tracking radar is required. The night-fighter radar, furthermore, feeds into an automatic pilot so the whole attack is automatic.

Science News Letter, July 11, 1953

ECOLOGY

Beef, Bread and Beer Create English Heaths

► ENGLAND'S "BEEF, bread and beer agriculture" is not necessarily the best for all parts of the island, believes Dr. W. H. Pearsall, Quain Professor of Botany at the University of London.

At a meeting of The Royal Institution of Great Britain, Dr. Pearsall said that deforestation of many areas of the British Isles to produce farmland for grazing and cereal crops led to the creation of sterile, acid heaths of no economic value.

To return the heaths to a state of productivity, the destructive processes caused by deforestation must be reversed, Dr. Pearsall said. Planting of new forests in the barren areas should lead to returned fertility and stability of soil.

Science News Letter, July 11, 1953

IN SCIENCE

TECHNOLOGY

Midget Motor Made For Navy Torpedoes

► A MIDGET motor slightly bigger than a rolled-up newspaper currently is being hurried along assembly lines to help submarine crews blast their targets from the seas.

The 25-horsepower motor will be used in new electric torpedoes. It will start the torpedo's heavy gyroscope, the device that guides the torpedo to its target.

The life span of the "suicide" motor, made by Westinghouse Electric Company at East Springfield, Mass., is a matter of seconds. Its working life is even shorter. In about a fifth of a second, the powerful little motor can set the gyroscope's flywheel spinning nearly 13,000 revolutions a minute. Its work done, the motor then disconnects from the gyroscope.

Seconds later the motor is blown apart as the deadly torpedo rams into its prey.

Standard 25-horsepower industrial motors are about 16 inches in diameter, 22 inches long and weigh about 415 pounds. The mighty midget, in comparison, is 3.5 inches in diameter, 10 inches long and weighs 10 pounds.

Science News Letter, July 11, 1953

CYTOLOGY

Movies to End Old Science Controversy

► MOVING PICTURES may end a 55-year-old scientific controversy. The controversy concerns a very delicate network of fibers inside living cells called the "golgi net" or "golgi apparatus."

Ever since it was first described in 1898 by an Italian scientist, Camillo Golgi, scientists have been divided over its existence. Its function is not known. However, with motion pictures made by Prof. F. B. Adamstone and Prof. A. B. Taylor of the University of Illinois, it is possible to see the slow pulsating movement caused by the shifting of the meshes of this delicate net-like structure inside each tiny nerve cell.

The movies, taken at the normal rate of speed, show also that the living nerve cell is a center of bustling activity in addition to the movement of the golgi net. Rod-like structures which are probably the source of many enzymes, and granules of various other kinds dart to and fro. Heretofore, the nerve cell was thought to be a quiet, jelly-like mass of protoplasm.

Their work is reported in the *Journal of Morphology*. The movies will be used for class instruction and further research.

Science News Letter, July 11, 1953

SCIENCE FIELDS

OCEANOGRAPHY

Skin-Diving Scientists Find "False Bottom"

► TWO SKIN-DIVING oceanographers, swimming through the mysterious "false bottom" of the ocean, have discovered that countless tiny marine organisms cause the troublesome double lines that show up unexpectedly on echo depth-sounder charts.

Diving to depths between 55 and 140 feet off Pt. Loma with Aqualungs, Robert F. Dill of the Navy Electronics Laboratory, and Conrad Limbaugh of the Scripps Institution of Oceanography, found the layer, "like the top of a Los Angeles smog," to be full of white organisms about two to four millimeters long.

Visibility dropped from 150 feet above the layer to about 10 feet inside it, they reported, and there was approximately a 10-degree drop of temperature inside the scattering layer.

On a second exploration, equipped with echo-sounding gear and plankton nets, the oceanographers found that the layer was double. Taking samples, they determined that the upper layer was composed mainly of jellyfish and animal plankton.

The lower layer, separated from the upper by a zone of clear water, was made up chiefly of diatoms and larval stages of bottom-dwelling marine animals. No fish or other large marine life were noted.

Since the scattering layers first appeared as "false bottoms" on echo-sounding equipment several years ago, scientists have speculated about their composition. They generally believed the layers were made up of marine organisms, but because of sampling difficulties the scientists could not accurately describe the small-organism population of these layers.

Science News Letter, July 11, 1953

ENTOMOLOGY

Termite Gourmands Eat Arsenic, Lead, Concrete

► TERMITES THRIVE on arsenic on Barro Colorado Island, the Smithsonian Institution's tropical research center in the Panama Canal Zone. Others of the 42 recorded termite species on the island do such versatile things as gnaw through lead and concrete or carry fungi with them to kill wood so they can eat it.

With such a talented termite population, Barro Colorado has become a center for termite control research.

James Zetek, director of the station, is in charge of anti-termite work. Up to now, he has made nearly 35,000 tests, using woods

impregnated with various repellents and poisons. About 400 different forms of treatment against termite attack have been tried out on the various woods, some with success, but most merely a testimonial to the termites' near-indestructibility.

The reason termites are hard to dispose of completely by poison lies in the way they obtain their nourishment. Termites eat wood for its cellulose content, but they alone cannot digest it. Special bacteria living in the termites' digestive tract break down the cellulose into a form which can be used by the termites. Without the bacteria, they would starve to death surrounded by food.

Thus, one of the best ways to kill termites would be to poison their bacteria. But, just as bacteria build up strains that resist penicillin or streptomycin, the termites' bacteria after a few doses of poison may form strains that are unaffected by it.

One race of Barro Colorado termites has thus acquired the ability to crunch heedlessly through arsenic to get to a tasty morsel of poisoned wood.

Science News Letter, July 11, 1953

MEDICINE

Gamma Globulin May Save 100 Children

► WITH 250,000 cubic centimeters of precious polio-fighting gamma globulin given on an emergency basis to children in Montgomery, Ala., one big question is: How many of the children will escape paralysis?

It may be a dozen. It may be a hundred. The exact number will never be known. Health officials and physicians gave the material to all children in the county under nine years of age, according to one report. The Public Health Service sent enough to cover all children under 13 years in the metropolitan area.

If 30,000 children got gamma globulin and it protects at the rate it did in controlled studies last summer in Harris County, Texas, only 12 children will escape paralysis. If it protects at the rate it did last summer in a controlled study in two communities in Iowa, 102 children will escape paralysis.

The actual number protected will depend on many factors, such as how fast the expected epidemic develops, whether all the children get the material early enough, how long the epidemic continues, and whether if it lasts a long time, mass inoculations are given a second time.

But because this was not a controlled study as the two last summer were, no one will be able to tell whether children who escape paralysis do so because they got gamma globulin or whether they would have escaped anyway.

Even if all 30,000 who were inoculated escaped paralysis, which is highly unlikely, no one will ever be able to say that it was due to gamma globulin's protective power that they were not afflicted.

Science News Letter, July 11, 1953

BOTANY

Radioactive Strontium Called A-Bomb Hazard

► RADIOACTIVE STRONTIUM, one of the fission products of an A-bomb blast, can be taken up readily from the soil by such vegetables as beans, radishes, carrots, barley and lettuce.

Thus it may be a future hazard to human beings and animals eating these vegetable crops, research at the University of California at Los Angeles Atomic Energy Project has indicated.

The vegetables were planted in various types of soil made radioactive artificially with five such elements. In addition to strontium, cesium, ruthenium, cerium and yttrium were used. Only strontium indicated it might be taken up in sufficient quantities by plants to be a serious hazard.

Radishes and beans took up more of the radioactive material than the other plants. The investigation also indicated that the rate of uptake by plants varied in different types of soil. The uptake was influenced by the amount and type of clay present in the soil.

The research was conducted by J. W. Neel, J. H. Olafson, A. J. Steen, Barbara Gillooly, Dr. Hideo Nishita and K. H. Larsen.

Science News Letter, July 11, 1953

ENTOMOLOGY

Melon Fly Pest Brought Under Control

► THE MELON fly, a pest that in the past has curtailed melon, cucumber and tomato crops in Hawaii and posed a threat to California agriculture, has been brought under control.

The melon fly for years has defied the best efforts of scientists. Control of the insect, however, has been accomplished through new applications of an old technique, developed in field tests in Hawaii by Dr. Walter Ebeling of the University of California at Los Angeles and Dr. H. A. Bess and T. Nishida of the University of Hawaii.

It consists of planting "trap crops" and treating them and surrounding vegetation with insecticides such as parathion and DDT.

This technique takes advantage of a peculiar habit of the melon flies. The insects enter the fields for only short periods during the day to lay eggs among the crop plants and fruits. They then return to certain plants surrounding the field, where they spend most of their time.

Thus planting a row of corn around melon or tomato fields and spraying the corn plants and nearby wild vegetation with insecticides effectively controls the pests.

The fact that the technique eliminates the crops with poisonous insecticides further enhances its value.

Science News Letter, July 11, 1953

TAXONOMY

Name-Calling A Science

Using "\$2 words" for plants and animals is a workable way to create order from chaos of common names. A million species have been given unique, descriptive scientific names.

By HORACE LOFTIN

► "THE HUGE, tawny — glared and snarled at the hunters on the ground below his tree as they prepared to toss a lasso over the —'s head. His heart filled with hate against these two-legged oppressors, the — tensed his muscles to spring."

But what is a —?

That is hard to say. It might be called a mountain lion or a cougar. On the other hand, you may know it as a puma or a panther. Or maybe in your part of the country it goes by the name deer tiger, Mexican lion, catamount or painter. All these are widely used names for the same animal. Wherever this great cat is found there is usually a local name for him, different from the one used on the other side of the mountain.

This sort of confusion within one country is perplexing enough. Then imagine the complications that arise when foreign names for the animal come into play. The mountain lion, puma or whatever you choose to call him is found from Patagonia in southernmost South America all the way north into Canada. Each of hundreds of different Indian groups has its own name for the big cat, not to mention the Spanish, Portuguese and French names used for it.

Just as this big cat has many, many common names, so are nearly all of the more common species of plants and animals loaded down with an array of common names that—if uncorrected—would break down any attempts to study all living things systematically.

Leaps Language Barriers

How would a biologist from the United States talk to a Mexican scientist about this cat, and know they both had exactly the same animal in mind? What name would a Japanese naturalist use to write about the cat, and have his German colleagues understand him precisely?

Now, multiply this problem by 1,000,000; for that is about the number of different plant and animal species that up to now have been discovered and described by biologists. It would be as if every person in the world had only first names, and used different first names at different times.

The solution that was worked out to overcome the handicap of too many names for living things is essentially a simple one, although it took many centuries to develop. Suppose there is an individual known in different places as Robert, Rob, Bob, Bobby,

Robin and Robby. The first question we ask is, whom is he kin to? Well, this fellow's father is a Stoopnagle. Then if we make up our mind that the name Robert will be his "real" first name, we have Robert Stoopnagle, which identifies him in our minds once and for all.

Relationship Is Key

Ask the same question about the mountain lion, puma, cougar, etc. Whom is he kin to? Well, he is a cat; and so, using the Latin word for cat, his surname would be *Felis*. Add on the descriptive Latin name *concolor* as a "first name," and we have the scientific name for the animal, different from the name of any other animal, and understood by all biologists, regardless of their nationality or language. The — is *Felis concolor*.

This binomial, or two-name, system gives us the key to naming all living things in an orderly fashion, and at the same time



WHAT IS IT?—A cougar on one side of the mountain may be a puma, mountain lion, catamount or painter on the other. But to scientists, it is *Felis concolor* anywhere in the world. The scientific name is the same everywhere.

indicates the relationship of one creature with another. For instance, now that we have the key name for cats in general, *Felis*, it is a relatively simple matter to name scientifically the other cats.

The common house cat is *Felis domesticus*, the group (generic) name being *Felis*, and the "first" (specific) name, *domesticus*, simply being the Latin for "domestic." In the same manner, lions are *Felis leo*; tigers are *F. tigris*; leopards are *F. pardus*; and jaguars are *F. onca*.

Notice that the generic name begins with a capital letter, while the specific name does not. Also, after a generic name has been used once or twice in an article, it is permissible to abbreviate it so long as the meaning remains clear.

System Ends Confusion

One of the most valuable uses of the scientific name is in clearing the confusion arising when two or more distinct species have the same common names. Take the common name "locust," for example. There are the locusts mentioned in the Bible that came in swarms, destroying everything green in their wake. Then there are the 17-year locusts in America, handsome insects that emerge from the soil every 17 years and do little harm beyond shattering the air with singing.

In non-scientific speech, they are both "locusts." They are, however, far from being the same insect. One is destructive, the other practically harmless; one has biting mouthparts, the other sucking mouthparts; one is a grasshopper, the other a cicada. The 17-year "locust" is needlessly feared and mercilessly attacked because of his undeserved bad name.

But mention the name *Schistocerca gregaria* to an insect specialist anywhere in the world and speaking any language, and he will know you refer to the destructive desert locust. Write about *Magicicada septendecim* and your scientific reader knows you refer only to the 17-year "locust," or cicada. System ends confusion.

The binomial system was worked out by

Devised by Linnaeus

a Swedish botanist, Carl Linnaeus, who for this contribution won the undying gratitude of men of science from his day to ours. A basic date in the history of biology is 1753, the year Linnaeus presented his perfected system of classification.

The Linnaean system goes far beyond the naming of species. It pictures life as a great branching tree. The giant trunk represents all living things. This soon divides into two large branches—the animal kingdom and the plant kingdom. These in turn become more finely subdivided, until the

terminal branches of the tree of life, the million twigs representing the known species of the earth, are reached.

Starting at the "tree trunk," the major divisions living things are classified into are: (1) All living things; (2) kingdom; (3) phylum; (4) class; (5) order; (6) family; (7) genus; and (8) species.

Let us trace *Felis concolor* backward through the tree, to see how the Linnaean system groups and names the principal divisions of living things.

Tracing One Classification

The outermost twig is the species—*concolor*, in this case. The species twig arose from a larger branch, the genus—*Felis*. Several genera (plural of genus) make up a family. The family branch from which *Felis* sprouted is called Felidae.

A group of families make up an order. The Felidae are members of the order Carnivora, or "meat eaters." This order includes such families as the Hyaenidae (hyenas), Canidae (dogs), and Ursidae (bears).

Several orders form a class. The Carni-

vora are in the class Mammalia, which great group of animals is chiefly characterized by the presence of mammary glands on the females which give milk for the young. Man himself (*Homo sapiens*) belongs to the class Mammalia.

The next great branching—phylum—is made up of classes. The class Mammalia, along with Amphibia (frogs, newts), Reptilia (snakes, lizards), Aves (birds), and several classes of fishes are included in the phylum Chordata (or Vertebrata).

A combination of phyla makes up one of the two great branches of life—the plant and the animal kingdoms. They in turn comprise the whole of living things.

So we have traced *Felis concolor* over the broad pattern of classification used by scientists everywhere, from his place as a distinct kind of life, a species, to a point where he is related to all living things. The outline of plant and animal classification parallels in general the course of evolution, through which a single undifferentiated living cell gave rise to the million forms of life known so far to science.

Science News Letter, July 11, 1953

PUBLIC SAFETY

Preventing Accidents

► "ACCIDENTS ARE the number one crippler of children under five years old in the United States today," declares Lawrence J. Linck, executive director of the National Society for Crippled Children and Adults.

Preventing such accidents is the responsibility of parents but "over-protection" is not the answer, in Mr. Linck's opinion. He urges careful teaching of children combined with "intelligent precaution."

Because most accidents happen to children under five in the home, he listed the following steps in accident prevention:

1. Children should be taught early in life that fires burn them; falls hurt them; poisons make them ill, and knives and scissors cut them.

2. Poisons, disinfectants and medicine

should be kept in locked cabinets or high out of the child's reach.

3. Children should be shown the dangers of bonfires and matches and how to avoid them, but at the same time fireplaces should be screened and matches kept out of reach of toddlers.

4. Handles of kitchen pots should be turned toward the back of the stove and out of the reach of children.

5. Guns, if kept in the house at all, should be put away unloaded and under lock and key.

6. Children should be taught how to walk carefully with sharp knives, scissors and glass containers, as soon as they are able to understand the dangers of such things. Until that time make sure sharp instruments are safely put away.

7. Children should be guarded from perilous climbs and from dangerous ledges and stairs. Screens should be fastened securely with screening nailed tightly to frame.

Science News Letter, July 11, 1953

PHYSIOLOGY

Supercharging Fails to Aid Athletes' Recovery

► ATTEMPTS TO speed recovery of college athletes from exhaustion after violent exercise by having them breathe pure oxygen, a so-called oxygen supercharging, were labeled "useless" in a report by Dr. Sid Robinson, Indiana University professor of physiology, at the meeting of the National Collegiate Track Coaches Association in Lincoln, Nebr. (See SNL, Feb. 21, p. 119.)

Science News Letter, July 11, 1953

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AHEAD OF TIME—Henry Kuttner—Ballantine Books, 177 p., paper 35 cents, cloth \$2.00. An anthology of 10 science fiction and fantasy stories.

CONSTRUCTION PROCEDURES IN TWO DEMONSTRATION HOUSES—Raymon H. Harrell and James T. Lendum—Univ. of Ill. Small Homes Council, 36 p., illus., paper, 50 cents. Demonstrates and describes recently developed techniques that save time, materials and money in small home construction.

DESIGN: A Creative Approach—Sybil Emerson—Laurel, 125 p., illus., \$5.95. Intended to teach design through experience, the author presents a series of creative experiments with inexpensive, everyday materials and media.

ENGAGEMENT AND MARRIAGE—Ernest W. Burgess and Paul Wallin—Lippincott, 819 p., illus., \$5.50. An organized presentation of research findings based upon a study of 1,000 engaged and 666 married couples to determine the nature and role of factors making for success and failure in courtship and marriage.

GEOLGY OF THE SALTDALE QUADRANGLE, CALIFORNIA. MINERAL DEPOSITS OF SALTDALE QUADRANGLE—T. W. Dibblee, Jr. and T. E. Gay, Jr.—Cal. Div. of Mines, Bul. 160, 66 p., illus., \$2.00. A report accompanied by geologic and economic maps.

HOLD YOUR WEIGHT LOSSES—Gulielma F. Alsop—Abelard Press, 222 p., \$2.95. A physician tells people who have had to diet how to maintain their weight balance.



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INDUSTRIAL RESEARCH AND THE ATOMIC FUTURE—W. L. Davidson, Charles H. Weaver, L. R. Hafstad—Nat'l. Assoc. of Manufacturers, 39 p., paper, free upon request direct to publisher, 14 W. 49th St., New York 20, N. Y. Articles on Atomic Energy in Industry—Tomorrow, A Manufacturer's Approach to Atomic Power, and Industry and Future Problems in Atomic Energy.

LABORATORY EXPERIMENTS IN GENERAL CHEMISTRY AND SEMI-MICRO QUALITATIVE ANALYSIS—George W. Watt and L. O. Morgan—McGraw-Hill, 228 p., illus., paper, \$3.50. Consists of 49 experiments in general chemistry, and enough laboratory problems in semi-micro qualitative analysis for a one semester course.

LIFE HISTORIES OF NORTH AMERICAN WOOD WARBLERS: ORDER PASSERIFORMES—Arthur Cleveland Bent—Govt. Printing Office, U. S. Natl. Museum Bul. 203, 734 p., illus., paper, \$4.50. This is the nineteenth in a series on the life histories of North American birds.

LOW TEMPERATURE PHYSICS—Charles F. Squire—McGraw-Hill, 244 p., illus., \$6.50. Describes the physical properties of matter at extremely low temperatures, together with experimental results which show the obedience of these properties to quantum laws.

PERMIAN FAUNA AT EL ANTIMONIO, WESTERN SONORA, MEXICO—G. A. Cooper, C. O. Dunbar, H. Duncan, A. K. Miller, and J. B. Knight—Smithsonian Institution, Pub. 4108, 131 p., illus., paper, \$2.50. Collections made during the seasons of 1943 and 1944 were definitely established as Middle Permian.

REPORTS OF PROCEEDINGS: THE SIXTH GENERAL ASSEMBLY OF THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS—F. J. M. Stratton, Ed.—Cambridge University Press, 157 p., \$1.10. Report of the meeting held in Amsterdam, Oct. 1-3, 1952.

THE TILLEDONTIA: AN EARLY TERTIARY ORDER OF MAMMALS—C. Lewis Gazin—Smithsonian Institution, Pub. 4109, 126 p., illus., paper, \$1.50. A review and revision of the lower and middle Eocene representatives of this order.

Science News Letter, July 11, 1953

INVENTION

Vacuum Nursing Bottle Keeps Baby's Milk Warm

LEONARD W. RUST SR. of Hopewell, Va., has invented a vacuum nursing bottle that keeps baby's milk warm when baby and mother take a trip. Employing the thermos bottle principle, the nursing bottle has a nipple that can be carried inside the bottle, but is easily switched to its "operating" position.

The patent, 2,643,785, also provides for an adapter that can be bought separately to convert ordinary thermos bottles into nursing bottles.

Science News Letter, July 11, 1953

METEOROLOGY

Drought Relief Forecast For Eastern Half of Texas

CONTINUING DROUGHT relief for the eastern half of Texas but not for the western half for the period ending July 30 has been forecast by Weather Bureau experts.

The western half of Texas will be warmer than normal, and "dry conditions are expected to persist" until the end of this month. Temperatures predicted for the rest of the nation:

Cooler than normal along the West Coast. Above seasonal normals over the central and western areas.

Normal in the northeast section.

Slightly cooler than normal in the Southeast.

"Greatest departures on the warm side of normal are expected over the Southwest and Central Plains," the meteorologists forecast.

Precipitation from central Texas eastward to the Appalachians will be substantially "drought relieving," while rains in the northern tier of states, the Ohio Valley and the middle and South Atlantic states will be near normal.

The tornado outlook for July was "normal," the Weather Bureau experts said, which means not very many. The most likely place for their occurrence is along the northern border of the country, as in the Dakotas.

Science News Letter, July 11, 1953

SEISMOLOGY

Pulsating Crystal Reveals Earth's Secrets

SCIENTISTS ARE learning about earthquakes, the earth's interior and petroleum deposits by observing small-scale, man-made "quakes" generated in a laboratory by a pulsating crystal of lithium sulfate.

The tiny tremors are being used in a study by Dr. Leon Knopoff and Glena Brown of the Institute of Geophysics on the Los Angeles campus of the University of California.

Many of the important features of earthquakes and seismic prospecting procedures may be reproduced on a small scale in laboratory models. This enables scientists to study seismic phenomena under known and controlled conditions.

The pulsating crystal of lithium sulfate sends "microquakes" through blocks of granite, wax or cement at the rate of 1,000 per second. The shock waves are reproduced on an oscilloscope and recorded photographically for detailed studies.

"Seismic waves at present are the most important means of exploring the earth's interior," Dr. Knopoff declared. "Through such laboratory studies we hope to develop better seismic prospecting techniques and better methods of interpreting seismographic data."

Science News Letter, July 11, 1953

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July 11, 1953



ALL-WEATHER ONION SPRAY—A new spray program, combining fungicides and insecticides, is saving onion crops on 15,000 acres in New York. The program, developed at Cornell University Experiment Station, Ithaca, N. Y., costs about \$1.50 an acre for each weekly application.

ENTOMOLOGY

Maggot Is Jekyll-Hyde

EVERY FAT, wormlike maggot is a Jekyll-and-Hyde, actually two individuals within a single body.

Maggots are juvenile, or larval, stages of flies, hatching from fly eggs, yet they do not grow up to become flies. When the time comes for the change from maggot to adult fly, nearly all the body tissues of the larva go into a state of dissolution, and the fly is newly created from undifferentiated cells carried about within the maggot.

The dissolved maggot tissues are used to nourish the developing organs of the fly.

This was reported by Dr. R. E. Snodgrass, entomologist and collaborator with the U. S. Department of Agriculture, in a review of scientific knowledge of fly metamorphosis.

This dual development is most accentuated in a special group of flies, the *Cyclorrhapha*, that include the hump-back flies, flat-foot flies, big-eyed and syrphus flies.

The maggot of these flies, he said, has diverged so far from the evolutionary course which produced the adult that it has become an independent creature in no way structurally related to its parents.

When the larva has completed its destiny, it gives way to the developing undifferentiated cells that then produce the fly, bringing death for the "Jekyll" but life to the "Hyde."

Dr. Snodgrass gave this summary in a paper, "The Metamorphosis of a Fly's Head," Smithsonian Miscellaneous Collections (Vol. 122, No. 3).

Science News Letter, July 11, 1953

MEDICINE

Tattoo Camouflages Ugly Birthmarks

SATISFACTORY RESULTS with tattooing to camouflage port wine birthmarks of face and neck have been obtained in 83% of patients, Dr. Herbert Conway of New York reports in the *Journal of the American Medical Association* (June 20).

Science News Letter, July 11, 1953

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ICHTHYOLOGY

13 Fish at Once Dragged From Surf

WITH SPOTLESS conscience and the backing of the California Academy of Sciences, Charles D. Podesta can tell his grandchildren how he made one jump in the California surf and dragged ashore 13 fish with his bare hands.

Returning from salmon fishing off Half-moon Bay, Mr. Podesta saw a queer fish with a fin like a sailfish's thrashing in the surf by Princeton pier near San Francisco. He rushed into the water, grabbed the fish by its tail, and after a rough battle, beached the prize, a slim, 53-inch fish with a mouthful of wicked teeth.

He took the fabulous catch to the California Academy, where it was identified as a lancetfish, *Alepisaurus borealis*. The ichthyologists, however, did not rest at that.

They sliced open the specimen to discover a 20-inch hake in its spacious interior. Then probing into the hake, they found 10 sanddabs and one curlfin turbot in its abdomen.

Count them up. Thirteen fish at once!

Science News Letter, July 11, 1953



SELLS FIRST STORY AT 60

"Since I am crowding threescore my objective in taking the N.I.A. Course was not to become a professional writer. However, while still taking the course, I sent an article to St. Joseph's Magazine. It was immediately accepted. Our Navy accepted others. All thanks to N.I.A."—Albert M. Hinman, 1937 East Silver Street, Tucson, Arizona.

To People who want to write but can't get started

DO YOU have that constant urge to write but fear that a beginner hasn't a chance? Here is what the former editor of *Liberty* said:

"There is more room for newcomers in writing than ever before. Some of the greatest of writing men and women have passed from the scene. Who will take their places? Fame, riches and the happiness of achievement await the new men and women of power."

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GENERAL SCIENCE

Threaten Research Work

Secretary of Defense issues instructions forbidding fund transfers for research by other government agencies unless private contractors are impossible to find.

► A PREFERENCE for private enterprise instead of public government service seems likely to bring ruin to some of the most effective research work in the nation.

Instructions have been issued from the office of Secretary of Defense Charles E. Wilson that transfer of some armed forces funds for research and development shall not be made to other government agencies until it can be shown that it is impossible to have such investigations done by a private contractor.

This means that some of the most fruitful research projects in various non-military bureaus will have to fight for continuance, even though they are in operation, fully and competently staffed, and of acknowledged usefulness.

Many of these endangered projects are in the National Bureau of Standards which has been doing work costing \$42,000,000, work requested and paid for by other agencies of the federal government out of funds appropriated to them by Congress. This is 85% of the Bureau of Standards' expenditures. Included are such vital defense projects as proximity fuzes, radio transmission, materials and other confidential and secret research.

With the coming of the new administration, some commercial concerns have contended that they should be given the chance to do such research. Attracted by the opportunity to charge relatively high percentages for overhead and administration, the private companies also look with favor upon building up research laboratories at public expense. They would acquire background, know-how, and an experienced staff, as well as certain patent rights on developments accomplished.

This seems to have brought about the intended reversal of the past practice of government research within the government.

YOUR HAIR

Its Health, Beauty and Growth

By Herman Goodman, M.D.

A medical specialist tells you what to do to save and beautify your hair, stimulate healthier hair growth, and deal with many problems, as: Dandruff—gray hair—thinning hair—care of the scalp—baldness—abnormal types of hair—excessive oiliness—brittle dryness—hair falling out—infestation—parasites—hair hygiene—glands—diet—coloring—and myriad other subjects concerning hair.

"Discusses the many problems of hair retention, regrowth and removal."—Science News Letter.

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2. Attacks upon the testing functions of the Bureau of Standards and other agencies such as launched during the Senate Small Business committee hearing on battery additives, weaken the protection of the public and the government from worthless commercial products.

Science News Letter, July 11, 1953

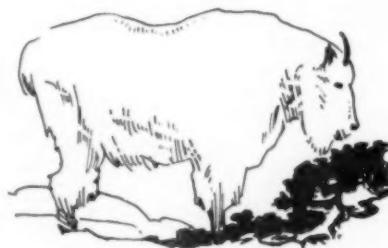
BIOCHEMISTRY

Cortisone Prevents Crippling of Tendons

► CRIPPLING AS a result of hard-to-repair tendon injuries may in some cases be prevented by cortisone, famous anti-arthritis hormone, Drs. Richard N. Wrenn, J. Leonard Goldner and Joseph E. Markee of Duke University, Durham, N. C., reported to the American Orthopedic Association meeting in Hot Springs, Va.

The cortisone is used during and after tendon operations. It provides more flexibility and better muscle movement by keeping tendons from sticking to surrounding tissue during healing. It also makes sewing the cut tendons much easier.

Science News Letter, July 11, 1953



Goats Play the Devil

► SATAN, IN modern comic and semiserious art, is drawn as a man with several decidedly goatish features. He has cloven hooves, and goat's horns top a long capricious countenance that usually has a "goatee" at its lower extremity. Sometimes, too, his ears stick out like a billy-goat's.

Sometimes it is contended that these symbolisms are simply transfers from the ancient Greek goat-god, Pan. That may or may not be true historically. If it is, however, it would assign to Pan a role much deeper and more malicious than the mere untamable, irresponsible freedom that Pan was supposed to symbolize. For real, flesh-and-blood goats, pastured by people for their wool and milk and meat, quite literally play the devil with the land over which

they trample and nibble. They represent the last, hungriest, most destructive stage of over-grazing.

Cattle and horses may crop the grass down to the last inch if too many of them are run on the range. Sheep will take that last inch, leaving only the roots in the ground. Goats will take even the roots, and thereafter browse on the woody shrubs that invade the pastures when grasses and other good herbs have been all eaten up.

In the meantime, their restlessly trampling, sharp-edged hooves keep the soil surface cut up, ready to blow with the wind or wash with the rain.

This is not an imaginary cycle. It has happened over and over again, especially in the Mediterranean lands. Pan, the goat-god, was not only a denizen of the rocky wilderness. He was to a considerable extent the creator of the wilderness.

The ultimate devil in the destruction of the land, however, is neither Pan nor his four-footed prototypes. Man, not Pan, must take the final responsibility. For goats, however wild they may run, are brought into new places by human herdsmen. If their numbers become such as to loose the damnation of erosion on the land, it is due either to the need or the greed of the men who control the size of the herds.

Thus far, in our own West, we are in the cattle-and-sheep stage of over-grazing. Goats have not yet entered the picture as an important element. If we keep on at the present clip, another generation or two may see little horns and sharp hooves where bison and antelope were in balance with nature a couple of generations ago.

Then we shall know that America has been added to the list of hungry lands.

Science News Letter, July 11, 1953

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July 11, 1953

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July 11, 1953

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July 11, 1953



TAILORED FOR EASE—The flying suit shown on the left will soon become standard issue for the Navy's aviators. It is more comfortable than the old model, right, as well as 12 pounds lighter.

TECHNOLOGY

New Navy Flying Suit

► THE NAVY has created a new suit for its pilots which is 12 pounds lighter, less cumbersome, easier to skin into and more comfortable.

Made of lightweight nylon, the suit also has a built-in parachute harness and a new-style nylon parachute. The chute can be

packed in half the time as before, with one man, instead of two, doing the job.

The pack is shaped to fit the contour of the pilot's back. This is the first major change in parachute-pack design in more than 21 years, the Navy reports. The suit was lightened by a new type oxygen supply tube, lightweight parachute buckles and the absence of a separate shoulder harness.

Experts in the Navy's Bureau of Aeronautics created the suit with help of the Douglas Aircraft Co., Switlik Parachute Co. and Talon, Inc.

Science News Letter, July 11, 1953

GO PLACES

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INVENTION

Emergency Stretcher Fits Into Automobile Trunk

► IF ENEMY bombers ever attack in the United States, the emergency stretcher that has been invented by Odysseus Stassinos of Charlotte, N. C., may come in handy. Designed to fit into the trunk of automobiles, the stretcher, which has been given Patent No. 2,643,395, can be readily extended into working position.

Science News Letter, July 11, 1953

Questions

CHEMISTRY—What kind of stains come out after dry cleaning? p. 24.

DENTISTRY—Of what use are dentifrices? p. 21.

MEDICINE—What are some indications of severe fatigue? p. 20?

How many children will be saved by gamma globulin shots in Alabama? p. 25.

ORNITHOLOGY—How does a cow help the cuckoo's feeding problem? p. 23.

VETERINARY MEDICINE—What is the only efficient way to combat foot-and-mouth disease? p. 22.

Photographs: Cover, Douglas Aircraft Company; p. 19, Consolidated Vultee; p. 21, National Institutes of Health; pp. 22 and 23, Fremont Davis; p. 29, Cornell University; p. 31, U.S. Navy; p. 32, Tech Agency, Inc.

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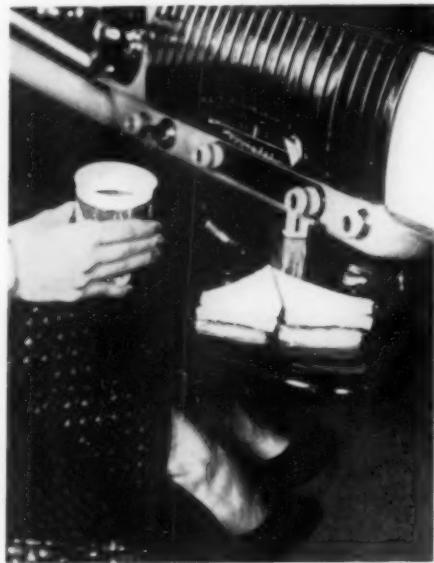
GARDEN KIT helps home growers check the nutritional needs of flowers and vegetables they grow. Easy to use, the kit comes complete with test tubes, chemicals, eyedroppers, a chopping block and directions for use. Results can be obtained in less than 10 minutes, the manufacturer reports. The kit also provides an easy method for analyzing soils.

Science News Letter, July 11, 1953

FURNACE CLEANING machine works like a powerful vacuum cleaner and removes ash, scale and soot from industrial furnaces and boilers to improve efficiency. Accessories include attachments for cleaning flues, air ducts and chimneys. The machine has a 115 volt a.c.-d.c. motor, weighs 43 pounds, stands 32.5 inches tall, is 21.25 inches wide and has a tank diameter of 17 inches.

Science News Letter, July 11, 1953

DASHBOARD TRAY for automobiles is safety-designed with no sharp edges and swings under the dashboard when not in use. Easily attached without drilling special holes, the rattle-proof tray holds maps, cigarettes, refreshments and other paraphernalia. The tray, made of a brilliant



red plastic with heavy chrome attachments, is shown in the photograph.

Science News Letter, July 11, 1953

PLASTIC FLAT labels, formerly available only in rolls, stick without moistening

to any smooth, clean surface. Especially designed for typewriter use, they can also be written on with any dry, blunt point. Pressure of the writing instrument alone causes the writing to appear; no pencil lead, ink or typewriter ribbon is required. Cold- and heat-resistant, the labels do not fade or discolor with age.

Science News Letter, July 11, 1953

WATER-BASE paint for exterior masonry dries quickly and forms a hard, waterproof film. It has a styrene latex vehicle. Soon after application, the odorless paint can withstand driving rains. It also strongly resists mildew and fading, and can be applied over new construction after only a few days of curing, the maker reports.

Science News Letter, July 11, 1953

FOLDING TABLE, especially useful where an open floor area must be converted daily into a cafeteria or meeting room, seats 16 adults and up to 24 children. When not in use, the table folds into a small storage space. Benches are detachable and can be obtained with an optional under-seat rack to receive books. The table top is of $\frac{3}{4}$ -inch exterior fir plywood.

Science News Letter, July 11, 1953

SQUEEZE TOYS, for children up to two years old, are made of soft vinyl plastic which is not damaged when sterilized in boiling water.

Science News Letter, July 11, 1953

SANDING BLOCK, which holds pre-cut home and shop sandpaper 1.75 inches by nine inches, is made of rubber and works especially well on flat surfaces, narrow edges and inside curves. The device can be used for both dry and wet sandpapering.

Science News Letter, July 11, 1953

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7-11-53

Do You Know?

Some trees are estimated to consume 200 gallons of water a day.

The water ouzel, a relative of wrens and thrushes, actually can fly under water and against the current for 30 seconds or more.

The flight of the Wright brothers' first plane in 1903 covered a distance only about one-half the wingspan of a modern heavy bomber.

More than 2,000,000 Americans will be living in mobile homes by the end of 1953.